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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/825,329

04/16/2004

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Q80508

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23373 7590 05/05/2008
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EXAMINER

FREAY, CHARLES GRANT

ART UNIT

PAPER NUMBER

3746

MAIL DATE

DELIVERY MODE

05/05/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/825,329	Applicant(s) LAU, DIETER	
	Examiner Charles G. Freay	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is in response to the Amendment of February 13, 2008. The examiner has considered and addressed each of the applicant's arguments in making the below rejections.

Drawings

The drawings were received on February 13, 2008. These drawings are approved.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As set forth in the previous office action the disclosure does not provide enablement for the following terms or teach how to perform the steps of" running the compressors "in a fixed rotational speed with respect to a characteristic map of the compressor", "an equal percentage throughflow quantity adjustment", the determination

of "optimum" values or the process of performing "a reciprocal mutually coordinated variation of the rotational speed desired values". Furthermore, it is unclear what specific characteristic map is being referred to and how the operating points are lead to the non-illustrated efficiency lines.

Response to Arguments

Applicant's arguments filed February 13, 2008 have been fully considered but they are not persuasive.

With regards to the second full paragraph of Item IV the examiner disagrees with the first statement for the reasons detailed in the rejection and in the arguments below. In the second sentence it is noted that the disclosure describes the compressor assemblies being driven by rotors. Actually, what the disclosure (see [004]) describes is that compressor assemblies "often differ from one another both in the very differently designed drive machines and in the different rotors."

Next the applicant summarizes the steps for optimizing the compressor assemblies and refers to paragraph [007]-[009] and [015]-[019] of the specification. Close inspection of the applicants summarized steps and the steps as set forth in the specification and the noted paragraphs shows that the applicant's summarized steps are not commensurate with the steps as set forth in the disclosure. For example, the

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applicant states that after a second compressor assembly is started the compressors are run in a “fixed rotational speed ratio.” The specification however, sets forth that the “compressor assemblies are run in a fixed rotational speed ratio *with respect to the characteristic-map data filed for each compressor assembly*”. Also, the applicant states that the second step is “this ratio is varied until a certain event occurs” while the specification (see [007]) sets forth that “this *fixed* rotational speed ratio is varied by means of an equal-percentage throughflow quantity adjustment via the rotational speed”. The missing limitations from the applicant's summary of the invention make clear the confusing and non-enabling disclosure. A fixed rotational speed ratio when considered alone can be understood by one of ordinary skill in the art. But a fixed rotational speed ratio *with respect to the characteristic-map data filed for each compressor assembly* is a much broader and encompassing limitation. It is this described and claimed association between the speed ratios and the characteristic maps which is unclear. While one of ordinary skill in the art can understand alone what a speed ratio is or what an operating point of a compressor is within a (non-illustrated) characteristic map, it is unclear what association a fixed rotation speed ratio has “with respect to” a characteristic map. From the applicant's arguments it would seem that this phrase associating the speed ratio with the characteristic maps has no meaning at all but this is in direct contradiction with the statements in the specification. For example, in paragraph [006] it is set forth that the object of the invention is to optimize the operation of a plurality of compressors “by regulating the characteristic maps of the compressor assemblies”.

With regards to the second step varying a speed ratio can be clearly understood but paragraph [007] sets forth “this *fixed* rotational speed ratio is varied by means of an equal percentage throughflow quantity adjustment *via the rotational speed*”. It is unclear how the fixed rotational speed ratio is varied (especially if it is fixed), it would seem ultimately, by varying the rotational speed.

With regards to the limitation of the equal percentage throughflow quantity the examiner notes that the station throughflow is defined at lines 4 and 5 of [003]. Despite the applicants arguments this does not make clear the separate limitation of an equal percentage throughflow quantity adjustment. It is unclear if this limitation is with respect to the station or somehow associated with each individual compressor. At page 10 lines 15-17 the applicant asserts that the “plain meaning of the words tells the reader of the specification that the throughflow quantity of the natural gas is adjusted”. While a throughflow through the station as a whole can be clearly understood reference to a term which is associating contributions from plural individual elements to a whole system or station without a clear definition is unclear and requires undue experimentation to determine what is meant. Furthermore the term “throughflow quantity” is matched with the terms “equal percentage” and “adjustment”. If this was a control of a single pump the disclosure maybe clear but such a term when associated with a station having plural pump is unclear especially when the applicant has not even hinted at whether the term is related to the total throughflow of the system or the

individual or related throughflows of the multiple pumps. A determination of what the applicant meant would require undue experimentation.

On page 9 lines 3-5 of the applicant' arguments it is set forth that the operating points are located within the characteristic maps and the maps define lines of maximum efficiency. The examiner notes that Fig. 1 is a characteristic map but that it does not disclose lines of maximum efficiency. Thus it is unclear how this map is related to the method as far as it is disclosed. In the last sentences of the second paragraph in section IV. And in the paragraph spanning pages 9 and 10 the applicant notes that there are many characteristic maps and specifically makes reference to Fig. 1 of the EPO ('624) reference which was incorporated by reference. It is unclear if the figure in the EPO reference includes such a map but if it does the examiner notes that essential subject matter cannot be incorporated by reference to a foreign document.

At lines 5-10 of page 9 of the arguments the applicant summarizes the steps of "...leading the operating points of the compressor assemblies toward these maximum efficiency lines." It is further noted that "a certain rotational speed of the compressor assemblies is calculated" and that based on these rotational speed values the speed ratio is adjusted and stored. The applicant asserts that given this detailed disclosure one of ordinary skill in the art could readily implement the steps of optimization. The examiner disagrees. No description has been provided of how the operating points are lead to the efficiency line. The fact that this adjustment is being made in a characteristic map which is not illustrated while a seemingly unrelated characteristic map is included

in the disclosure is also confusing. The calculation method for determining the certain rotational speed has not been given and it is unclear how the rotational speed adjustment is made.

With respect to the applicant's arguments regarding the interpretation of the various ways of interpreting the "fixed rotational speed ratio" and setting forth that the examiner was referring to multiple embodiments the applicant has misconstrued the examiner's argument. The examiner notes that he was not pointing out various embodiments but was instead pointing out the uncertainty of the disclosure and the enablement provided by the applicant's disclosure. Furthermore with respect to the argument that a specific characteristic map is not required, the examiner disagrees. While the details of such a map need not be claimed such a map should at least be illustrated and discussed. Especially since there is such a hazy association between the controlled variable and the operating points of the compressors in the various associated compressor maps. Because the various speed ratios are described as being run with respect to a characteristic map there are multiple variables which are related to one another and to make clear how the operating points lead to the efficiency lines one of ordinary skill would need to understand which variables can be changed.

The applicant's arguments do not address the problematic areas of the disclosure and the applicant's summary of the steps in the method are not commensurate with the steps as set forth in the disclosure. As set forth above there are

whole sections of the steps in the method which have not been adequately described or enabled. Because of this the quantity of experimentation required to accomplish the optimization of the compressor station is undue.

With regards to the rejections regarding the determination of the “optimum” value and the performance of “a reciprocal mutually coordinated variation of the rotational speed desired values”, and the “mutually coordinated variation” the applicant argues that an inventor need not disclose every detail and that what is conventional knowledge will be read into the disclosure. In the current case however, what are discussed are calculations, adjustments and determinations of “desired values” and the disclosure has not provided an enabling disclosure of how to accomplish this task without undue experimentation. With regards to the “reciprocal mutually coordinated variation of the rotational speed desired values” limitations this is still an unclear and non-enabled limitation. The applicant argues that what is well known need not be illustrated with regards to this limitation. Taken alone a “reciprocal mutually coordinated variation of the rotational speed” of the compressors may/might be enabled. But what is claimed is a variation of the “desired values”. This suggest a mathematical operation performed in a controller involving steps which have not been described.

After further review and consideration of the applicants remarks regarding “sequence control”, the “optimization computer” and Fig. 2a and 2B the examiner agrees and the applicant's arguments have overcome this rejection.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles G. Freay whose telephone number is 571-272-4827. The examiner can normally be reached on Monday through Friday 8:30 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Charles G Freay/
Primary Examiner
Art Unit 3746

CGF
May 3, 2008